

UNIVERSITY COLLEGE LONDON
FACULTY OF THE BUILT ENVIRONMENT
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**Intrinsic Not Incidental: The Role of Urban Design in the Creation
of Socially and Economically Sustainable Communities**

by

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Being a Report submitted to the faculty of The Built Environment as part of the requirements for the award of MSc Urban Regeneration at University College London:

I declare that this Report is entirely my own work and that ideas, data and images, as well as direct quotations, drawn from elsewhere are identified and referenced.

Signed .

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A NOTE ON REFERENCING

All referencing in this Report conforms to the Harvard System. All cited publications are referred to in the text by giving the author's name, the year of publication and the page number where appropriate: (Author, Date: Page Number). These citations are then put in alphabetical order in the Bibliography with full details of the respective publications.

To distinguish between citations from academics and my interviewees, quotations taken from my own interviews have only the initials of the interviewee in the main text. A full list of interviewees, the positions they hold, and the date and time of the interviews can be found in the Appendix together with information on any other meetings held.

ABSTRACT

This research explores the relationship between urban design and the creation of socially and economically sustainable communities. Facilitated by the use of an analytical matrix, it considers the impact urban design can play on a set of sustainability indicators. This Report discusses these relationships in the context of a specific case study - Park Central in Birmingham. Set within recent literature, this Report considers how the failures of the modernist era have informed thinking in urban design and sustainability in the twenty first century. In light of extensive reading and local research, this research suggests that urban design should be an important consideration in regeneration projects from their conception to their completion.

1.1 Urban Design and Sustainable Communities

Since the publication of *The Urban Design Task Force Report* (Urban Task Force, 1999) there has been a wealth of research and literature on both urban design and the creation of sustainable communities. Sustainability, a buzzword of the twenty first century, is a term that frequently appears in relation to all aspects of the built environment. This Report focuses on environmental sustainability but due to constraints of length it focuses on the extent to which socially and economically sustainable communities in the context of urban regeneration.

1. INTRODUCTION

1.1 Research Question and Objectives

The aim of this Report is to ascertain

To what extent does urban design impact on the creation of socially and economically sustainable communities?

The objectives are:

- to investigate the relationship between the dimensions of urban design and the criteria for sustainable communities;
- to substantiate theoretical linkages with empirical evidence;
- to judge the impact of urban design on social and economic sustainability in the context of urban regeneration.

A case study of Park Central in Birmingham, the winner of the Deputy Prime Minister's Award for Sustainable Communities 2005, is used as an empirical study to inform this research. Park Central is widely considered to be an example of a well-designed and sustainable community and, as such, is a good example through which to explore the connection between design and sustainability.

1.2 Urban Design and Sustainable Communities

Since the publication of *Towards an Urban Renaissance* (Urban Task Force, 1999) there has been a wealth of research and literature on both urban design and the creation of sustainable communities. Sustainability, a buzzword of the twenty first century, is a term that frequently appears in relation to all aspects of the built environment. This Report touches on environmental sustainability but due to constraints of length it focuses on the criteria for creating socially and economically sustainable communities in the context of urban regeneration.

Since the late 1990s, urban design has risen in prominence and is a popular topic for academic research. In the main, literature on urban design (the most seminal of which are examined in Section 2) is normative in nature – describing what makes places successful and how this can be achieved. Rather than continuing in this normative tradition, this Report is designed to use theoretical and empirical evidence to identify any causal links between urban design and the creation of socially and economically sustainable communities. To promote a more analytical approach a matrix is used to examine the extent to which urban design impacts on creating sustainable places and concludes with recommendations relating to the urban design process.

2. LITERATURE REVIEW

This chapter reviews the main arguments and theories concerned with urban design, placing this Report in its academic context. It analyses the evolution of ideas in urban design and the increasing prominence of the concept of sustainability.

2.1 The Concept of Sustainability

A relatively recent concept, sustainability is a key consideration in the context of urban regeneration. Indeed, the seminal Urban Task Force Report (1999) begins with a chapter entitled “The Sustainable City”. The term sustainability encompasses issues ranging from environmental and ecological longevity, to building materials that will stand the test of time; from long-term plans for funding, to creating communities that can thrive economically and socially now and in the future. In *Sustainable Communities: People Places and Prosperity* (ODPM, 2005), sustainable communities are defined as:

... places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all (2005:56).

In planning and regeneration, sustainability is the antithesis of the short-term planning of both the industrial age in Britain (Urban Task Force, 1999:26) and the modernist era that ensued. The Government’s *Sustainable Communities Plan* (2003) and the recent review of the Government’s progress by the Sustainable Development Commission (2007) show a commitment to creating communities that stand the test of time.

2.2 Reactions against the Modernist Era – Poor Design and Unsustainability

Modernism has been heavily criticised in literature on sustainability grounds, largely because of poor urban design. An early critic of the modernist age, Jane Jacobs, attacks many of the fundamental ideas advocated by modernist urban planners in her influential

book *The Death and Life of Great American Cities* (1961): "... look at what we have built ... low income projects that become worse centres of delinquency, vandalism, and general social hopelessness than the slums they were supposed to replace ..." (1961:14). Arguably, Le Corbusier's vision of "segregation of use, the love of the car and the dominance of private over public space" (Neal, 2003:4) has created placeless, sterile, repressive and socially unresponsive estates (Aravot, 2002; Arefi, 1999; Crang, 1998; Hall, 1988; Relph, 1987). Peter Hall describes the consequences of the modernist era to be "at best questionable, at worst catastrophic" (1988:204). In the *Sustainable Communities Plan* (2003), the Deputy Prime Minister admitted "... in too many estates bad design, poor construction standards, a lack of homes for owner occupiers and poor infrastructure made it hard for communities to thrive in the long-term" (ODPM, 2003).

"Urban design" emerged in Britain during the modernist period. Literature rejecting modernist ideals suggests a causal link has already been identified between **poor design** and **unsustainable communities**. However, there appears to be a lack of literature identifying causal links between **good design** and **sustainable communities**.

2.3 Defining Urban Design in the Twenty First Century

In 2000, the Commission for Architecture and the Built Environment (CABE) produced a document "*By Design*" for the Department of the Environment, Transport, and the Regions (DETR) describing urban design as:

... the art of making places for people. It includes the way places work and matters such as community safety, as well as how they look. It concerns the connections between people and places, movement and urban form, nature and the built fabric, and the processes for ensuring successful villages, towns and cities (2000:8).

Two broad traditions of urban design thought are prominent in the literature (Carmona *et al*, 2003:6). Below I refer to them as 'Physical and Environmental Determinism' and 'The Social Dimensions of Design'.

2.4 Environmental and Physical Determinism

Although it is widely accepted that the creation of sustainable communities is “not just about bricks and mortar” (ODPM, 2004), it is also agreed that environmental determinism often plays a leading role in regeneration. Advocating this Oscar Newman, in his book *Defensible Space* (1972), argues that environmental psychology impacts on the success of a place through how it influences behaviour. He claims there is a direct relationship between high-rise housing estates and their significant crime levels.

Writers such as Gordon Cullen with his ideas on *Townscape* (1961) also highlight the physical characteristics of the environment. Cullen, an early critic of the British urban scenery, charted what he saw as the damage wreaked on British towns and cities across the country in the article ‘Outrage’ (1955). Arguing all these spaces should be designed and not accidental, he advocated that houses form spaces, streets, squares: there is outside space as well as inside space: and there are enclosed spaces.

Van Kempen *et al.* (2005) suggest physical determinism is increasingly supported by two policy trends. Firstly, they explain the importance of design to ‘integrated’ policy programmes: “it is not exceptional for policy makers to believe in physical determinism and use the instrument of physical restructuring to resolve social problems.” (2005:151). Secondly, they see the policy of area-oriented targeting as suggesting “that most problems are capable of being resolved within a specific area. If these problems are predominantly social, physical measures will also still be directed to these areas” (2005:151). As mentioned in Section 2.2, modernist design has frequently been blamed for the deterioration of social conditions on high-rise estates in Britain and across Europe. “As soon as the first ‘modern’ functionalist housing estates were built they were subject to severe criticism, and by association were rapidly linked to social problems of all kinds” (Van Kempen *et al.*, 2005:151-152). Consequently many such buildings have been demolished.

However, Van Kempen *et al.* also recognise the shortfalls to physical and environmental determinism:

... the link between physical characteristics (number of storeys, number of entrances per building ...) and social characteristics (vandalism, graffiti, unemployment, and so forth) is strong, but most probably caused by a third set of intermediary variables ... (Van Kempen *et al*, 2005:152).

Despite the identified deficiencies of environmental determinism, support for large-scale physically-led regeneration of 'problem estates', and especially the restructuring of modernist high-rise housing estates, has continued into the twenty first century. Clearly, in many cases, social problems need to be tackled alongside physical renewal but evidence from the RESTATE research in the Netherlands has suggested physical determinism can resolve social problems indirectly through improvements to the housing stock rather than programmes to stimulate the raising of education levels or access to the labour market (Van Kempen *et al.*, 2005:166).

Whilst this Report accepts there are shortcomings to an environmentally and physically determinist argument, critics have yet to invalidate these ideas. Physical and environmental determinism continues to raise significant considerations for researchers: hence the importance of these ideas to my Report.

2.5 The Social Dimensions of Design

The other broad tradition in urban design, advocated by writers such as Kevin Lynch, acknowledges how important people are to urban design. In 1961, the same year as Jacobs wrote *The Death and Life of Great American Cities* and Cullen published his book *Townscape*, Kevin Lynch produced *Image of the City*. Unlike advocates of Modernism, current thinking favours a more holistic approach. Tibbalds states we need to "stand back and look at what we are producing as a whole ... and think about places in their entirety" (1992:9). Carmona *et al.* (2003) see the relationship between people and places as fundamental to the success of urban design. In the concluding chapter to the book *Public Spaces Urban Places*, Carmona *et al.* state their book:

... should be understood as a discussion of how to make 'places' out of 'spaces' – although ... this is done not so much by urban designers as by the people who inhabit space with their activities and, thus, turn them into places (2003:283).

This anthropocentric approach to design was advocated by Jane Jacobs in the 1960s when she was already encouraging the reversion to streetscapes rather than high rise living: “In spite of much experiment, planned and unplanned, there exists no substitute for lively streets” (1961:129). She argued this vibrancy occurs due to the design of streets incorporating mixed usage, with people around throughout the day, thus increasing the safety of the area. Following Oscar Newman’s book *Defensible Space* (1972), the idea of designing out crime became popular and safety and crime prevention is now a major consideration in designing places for people. Public desire for personal safety and protection from crime “has become an overriding precursor to most other urban design and planning considerations” (Shaftoe,1998:178). A steady rise in crime through the second half of the twentieth century was accredited to underoccupied areas at certain times of the day or week due to single-use zoning, traffic/pedestrian segregation through subways, and open deck access to properties. To overcome these problems, in the 1990s the police introduced an accreditation scheme for new homes called “Secured by Design” to encourage the consideration of safety in design. Although there is an accepted correlation between poor design and levels of crime, Shaftoe warns against overstating the impact of the designing for security approach. Like critics of environmental determinism, he argues people should not be viewed as “mere automatons whose behaviour is entirely conditioned by the environment they find themselves in” (1998:180). Despite this criticism, Shaftoe accepts that urban design can be used very effectively in reducing the fear of crime, explaining how high boundary walls may reduce actual crime but will not reduce the fear of crime whilst conversely good lighting may not reduce actual crime levels but is welcomed as a fear reducer (1998:182). Arguably urban design cannot remove or reduce crime successfully without collaboration with other neighbourhood schemes involving the police, planners, and local authorities.

2.6 Combining the Approaches

Recent literature synthesises ideas of physical determinism with the social dimensions of design. This shows “contemporary urban design [to be] simultaneously concerned with the design of urban space as an aesthetic entity and as a behavioural setting” (Carmona *et al*, 2003:7).

Design is a core problem-solving activity that not only determines the quality of the built environment – the buildings, public spaces, landscape and infrastructure – but also delivers many of the instruments for the implementation of an urban renaissance (Urban Task Force, 1999:39).

2.7 The Ingredients and the Recipe

In the preface to *Front to Back* (Lewis, 2005), Jon Rouse (then the Chief Executive of The Housing Corporation) describes the essential ingredients of a good residential neighbourhood as “excellence in spatial planning, prioritisation of public spaces, selfless architecture and attention to detail” (Rouse, 2005:ix). Rouse also muses “If the ingredients are clear, one wonders whether the recipe is too difficult to follow ...” (2005:iv).

Carmona *et al*. warn against thinking about theories of urban design in such a “prescriptive fashion” or as having a “formulaic solution” (2003:283):

Design is an exploratory, intuitive and deductive process, involving research into the problem posed, and into the variable and specific conditions of the time and place. This is not to say that the complex interactions between the processes and elements in any one place cannot be examined, nor that these cannot give generic clues as to why some places succeed while others fail (Carmona *et al*, 2003:284).

Were this Report to continue in the normative tradition, concerned only with turning the ingredients into a successful recipe, such “generic clues” would restrict what could be achieved. Consequently, I have devised a matrix to promote a more analytical approach,

facilitating an enhanced understanding of the causal links between urban design and the creation of socially and economically sustainable communities.

3. METHODOLOGY

3.1 A Reminder of the Research Question and Objectives

The aim of this Report is to ascertain

To what extent does urban design impact on the creation of socially and economically sustainable communities?

The objectives are:

- to investigate the relationship between the dimensions of urban design and the criteria for sustainable communities;
- to substantiate theoretical linkages with empirical evidence;
- to judge the impact of urban design on social and economic sustainability in the context of urban regeneration.

3.1 Primary Research

The redesigned Park Central is the product of a joint partnership between Optima Community Association, Crest Nicholson PLC and Birmingham City Council, working with architects Gardner Stewart. Local research was carried out on-site at Optima's Head Office.

Various methodologies have been used in researching this Report since more than one method of data collection is needed for triangulation (Bell, 2005:116). However, the nature of my exploratory research has necessitated a focus on personal observations and interviewing.

Visual Analysis

“When you observe a space you learn about how it is actually used, rather than how you think it is used” (Project for Public Spaces. 1999:51, in Carmona *et al.* 2003:165). “A case study ... is based principally upon personal observation of a real situation”

(Hamilton, 1990:29) and much of my research on the urban design of Park Central involved visual analysis of the area. A tour of Park Central, with a member of Optima's staff, allowed me to record evidence and support my research using digital photography. Crest Nicholson provided information and I visited their site office, marketing suite and show homes.

Interviews

Although time consuming (Bell, 2005:157; Robson, 2002:273), interviews are useful for gaining relevant information. "Face-to-face interviews offer the possibility of modifying one's line of enquiry, following up interesting responses and investigating underlying motives ..." (Robson, 2002:272-273). Time spent at Optima's Head Office provided a unique opportunity for immersion in my research topic. Contacts made through Optima facilitated meetings with various people, allowing me to develop ideas in both formal interview settings, and informally with staff interested in my research. Formal interviews were held with Angela Dyer (Head of Regeneration at Optima), three local residents, Paul Meade (Project Manager with Crest Nicholson) and Dave Thompson (Development Manager at Optima). These interviews were semi-structured, with pre-prepared questions but with the ability to adapt to interviewee responses.

*Freedom to allow the respondents to talk about what is of central significance to them rather than to the interviewer is clearly important, but some loose structure to ensure all topics which are considered crucial to the study are covered does eliminate some of the problems of entirely unstructured interviews. The **guided** or **focussed interview** fulfils these requirements* (Bell, 2005:157).

Interviewees permitted the recording of sessions using a dictaphone, providing both evidence of the interviews and an opportunity for later review. "Many experienced researchers and supervisors ... make the point that if no transcription is done and made available for scrutiny if required, the interviewers can say what they like ... [and] even make up 'quotations' that suit their purpose" (Bell, 2005:164). Transcription, however, is extremely time consuming: "... if you have to do the typing yourself, you can count on at

least four hours work for every hour of interview, even if you are a skilful and quick typist” (Bell, 2005:164-165). Therefore, due to time limitations, a digital copy of the original interviews is available as an appendix to this Report.

Documentary Analysis

To gain an understanding of the site, I was granted privileged research access to documents and plans, in both paper and electronic form, relating to the development of the urban design of Park Central. These included development frameworks, masterplans, movement plans, and photographs of the area. This is an unobtrusive method, allowing for triangulation with other data collected.

Ethical Considerations

With any research project there are important ethical considerations. Edwards and Talbot (1994) and Robson (1993), amongst others, clarify the issues that the researcher must take into account. When talking to staff and residents, I was careful to explain my research, to obtain permission to use information gathered, and ensure anonymity when requested.

3.2 Secondary Research

Many secondary sources have been considered. These sources, referred to in my literature review, provide the theoretical context for my primary research.

3.3 Limitations to the Research Methodologies

Due to length restrictions, this Report explores one case study only (with no ‘control’ case) and, therefore, has limited evidence from which to draw conclusions. Also, like most regeneration projects, Park Central is still in its infancy and inevitably definitive judgements on what is causing the improvements seen on the site cannot be reached. The value of this research lies in its exploratory nature. The approach taken raises questions about the relationship between urban design and economic and social sustainability to stimulate further research on the topic. A discussion of the limitations of my research is returned to in the conclusion.

4. THE MATRIX

To facilitate an assessment of the impact of urban design on the creation of socially and economically sustainable communities, I have compiled a matrix to provide a mechanism for judging and visualising the impact of urban design on sustainability in regeneration.

On the matrix (page 15), the y axis consists of the six dimensions of urban design, as defined by Carmona *et al.* in *Public Places Urban Spaces* (2003). These dimensions (Fig.1.) provide a holistic approach to understanding the subject area. However, as Carmona *et al.* state, the six dimensions are only split “for the purpose of clarity in exposition and analysis” (2003:vii) and should be viewed as parts of a greater whole.

Dimensions of Urban Design	Definitions (adapted from Carmona <i>et al.</i> 2003)
1. Morphological Dimension	The layout and configuration of urban form and space
2. Functional Dimension	How places work
3. Temporal Dimension	How environments are used differently at different times
4. Visual Dimension	The appreciation of space and the aesthetic qualities of urban spaces and townscape
5. Perceptual Dimension	How people perceive environments and experience places
6. Social Dimension	The relationship between people and space

Fig. 1. Dimensions of Urban Design

On the x axis, transecting these dimensions of design, are the criteria for what makes a socially and economically sustainable community. These components are adapted from the Report *A Toolkit of Indicators of Sustainable Communities* (2003) produced by Derek Long (Housing Corporation) and Mary Hutchins (European Institute for Urban Affairs). This toolkit relates to the regeneration of social housing and, therefore, is directly relevant to the regeneration of Park Central, the success of which can be measured against such indicators. Although the toolkit is designed for social housing, arguably the sustainability indicators are applicable to the creation of any successful regeneration project.

My research takes its structure from this matrix with subsections considering the components of what makes a sustainable community. All the sections explore the impact of urban design on each sustainability indicator, both theoretically and in relation to Park Central, on a four point scale from weak to very strong (page 45). The judgements reached are stated in each subsection and then recorded on the matrix. This matrix informs the conclusion to this research, where the grid is completed and colour-coded to show the strength of the relationship between urban design and what constitutes a socially and economically sustainable community. The value of this research lies not only in the questions it attempts to answer, but also in those questions it consequently raises for future theoretical and practical consideration.

Indicators of Sustainable Communities Adapted from <i>A Toolkit of Indicators of Sustainable Communities</i> (Housing Corporation and European Institute for Urban Affairs, 2003)						
The Dimensions of Urban Design (Carmona <i>et al.</i> , 2003)						
		Demand for housing / Reputation (or image) of the community	Crime and anti-social behaviour	The accessibility of employment, facilities and services	The quality of the community's built and green environment / The quality design and layout of housing	The extent of community cohesion / The mix of the community / Social exclusion and poverty
The Morphological Dimension						
The Functional Dimension						
The Temporal Dimension						
The Visual Dimension						
The Perceptual Dimension						
The Social Dimension						

(Fig.2.)

5. CONTEXT FOR THE CASE STUDY

Park Central is considered a successful regeneration project, and has been recognised as an “excellent example” (ODPM, 2006:7) of a well-designed and sustainable community. Optima and Crest Nicholson have won awards for the scheme, including the prestigious *Deputy Prime Minister’s Award for Sustainable Communities* (2005). In the ODPM Report, Clive Dutton (Director of Planning and Regeneration for Birmingham City Council) described Park Central as an “inspirational example of sustainable communities being delivered on the ground” (2006:4). The Report states:

The project has retained a strong focus on quality of design from the outset ...and boasts several accolades, including a CABE ‘Building for Life Gold Standard’ award for Park Central in 2005. This meticulous commitment to design has meant that the new housing is effectively ‘tenure blind’ ... All new homes met Decent Homes Standard by December 2004 and ... are built to Lifetime Homes (ODPM, 2006:7).

However, before examining the urban design of Park Central today, the current regeneration must be contextualised.

5.1 The Site Location

Park Central is the focus of a major regeneration programme being undertaken on the Central Area Estates, now known as Attwood Green. Located to the south of the city centre, in the Convention Quarter, the 61 acre site lies within the ring road (A4540) which defines the city centre boundary (Fig. 3).

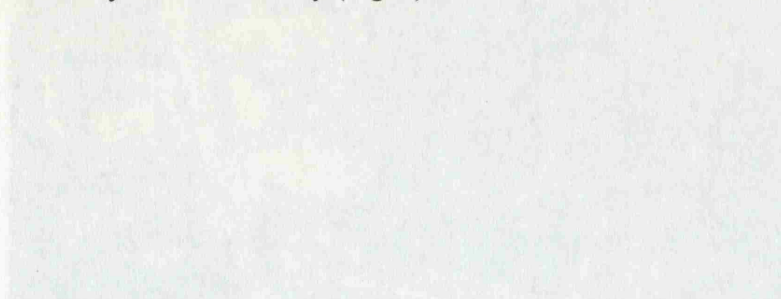


Fig. 3. Location of Park Central within the city of Birmingham



Fig. 3. Location of Park Central (Source: Crest Nicholson, 2007)

5.2 Lee Bank – The Modernist Era

Lee Bank (now Park Central) illustrates how poor design can be a major factor in unsustainable communities. Lee Bank, a product of slum clearance following the Second World War, provided a *tabula rasa* for Le Corbusier's modernist ideals. What emerged was characterised by 'towers in the park': high rise blocks in open parkland (Fig.4.), seen as a panacea to the problems of earlier times.



Fig. 4. Lee Bank, 'towers in the park' (Source: Optima)

Faults in the estate design were apparent by the 1980s and led to physical, economic and social decline. Unsafe access to properties via poorly lit alleyways, and low rise flats and maisonettes with deck access and flat roofs (Fig. 5.), posed security threats - heightening both the fear and occurrence of crime. It was an estate in disrepair, synonymous with crime and vandalism (Fig. 6). Poor design was instrumental in the deterioration of Lee Bank into a sink estate.



Fig. 5. Midford Grove, 2002 (Source: Optima)

Fig. 6. Lee Bank, 1998 (Source: Optima)

It became evident that the acres of rolling parkland lacked design and were poorly thought out. Routes through the park were not legible, with poor lighting and no natural surveillance of the park area. Perceived as unsafe, the parkland was referred to as the 'green desert' and a 'mugger's paradise' by residents and the play areas fell into disuse.

Despite adversity, committed residents of Lee Bank protested, drawing attention to the condition of the estate and forcing a reaction from the local authorities. Subsequently, residents worked with the local authorities to bid for £50 million from the Estates Renewal Challenge Fund (ERCF). Local residents then voted 61.2% in favour of transferring the housing stock from Birmingham City Council to Optima Community Association, thus securing funding from ERCF for extensive regeneration. Optima, partnered by Birmingham City Council and the residents, selected Crest Nicholson to work with them in regenerating Park Central.

It was evident that piecemeal redevelopment of Lee Bank would not bring about the much-needed improvements. Therefore, to address such deep-rooted problems relating to

the design of the estate, the partnership recognised regeneration necessitated large scale demolition (Fig. 7.).



Fig. 7. Longleat and Charlecote demolition, 2000 (Source: Optima)

5.3 Park Central Today

Lee Bank has been transformed. Extensive demolition and refurbishment provided the opportunity for comprehensive redesign (Fig. 8.). Once noted for derelict homes, a high turnover of tenants, high crime rates and a stigmatised reputation, Lee Bank has been regenerated to create the award-winning Park Central - a mixed use, mixed tenure estate, designed to be vibrant, attractive and sustainable.



Fig. 8. Masterplan for Park Central (Source, Attwood Green Development Framework, 2001)

This transformation has been heralded as “the epitome of innovation and high quality ... an excellent example of how to turn an area around” (ODPM, 2006:7). Together with urban design, other factors have combined to ensure the current success of this development, including the influence of Optima Community Association, the partnership with Birmingham City Council and Crest Nicholson, community involvement, and the wider context of change in response to the social, political and economic climate of the time.

The design of Park Central marks a significant break from the past. This Report uses Park Central as an empirical study to explore the role and impact of urban design in the creation of sustainable communities.

It is relatively straightforward to think of a successful place, and to experience it as such; it is much more difficult to discern why it is successful, and whether similar success can be generated elsewhere (Carmona et al., 2003:96).

6. THE RESEARCH

6.1 Demand for Housing and the Reputation (or Image) of the Community

In my view, the radical reconfiguration of Park Central demonstrates that urban design could be an important contributing factor in improving the reputation of an area and, consequently, creating a demand for housing. The reputation of an area is reflected in its desirability as a place of residence. Areas with a good reputation normally have a strong demand for housing whilst areas with poor reputations, such as Lee Bank in the 1990s, have very low demand for housing. The Housing Corporation and the Institute for Urban Affairs state that “demand for housing is the principle measure of community sustainability” (2003:7); thus, Lee Bank was an unsustainable community. Optima’s Report to the Board (2006) shows the improvements in demand for housing and the reputation of the estate from 2001, then Lee Bank, to 2006 now Park Central (as part of Attwood Green). A relative rise in house prices is a clear indicator of increased housing demand and the excerpt from the Optima’s Report provides evidence of this:

Description	Definition	2001/02	2002/03	2003/04	2004/05	2005/06
6. Relative levels of house prices	The annual average for all residential property sales standardised for house type mix compared with a district housing market average	RTB valuation average £47,382	RTB valuation average £63,149	RTB valuation average £77,611	RTB valuation average £104,470	RTB valuation average £121,800
		New homes sales prices	New homes £80,000 - £100,000	New homes £100,000 - £180,000	New homes £125,000 - £299,000	New homes £125,000 - £299,950

Fig. 9. Relative levels of house prices (Source: Optima, 2006:2)

The urban form and space of Park Central is testament to the very strong role urban morphology plays in breaking away from the stigmatised image and reputation of the past. The new form and layout of the site is spatially coherent: there are lines of sight making it clear where pathways lead; there are traffic calming measures; and the new flats and houses provide natural surveillance of the area (Fig. 10). Interviews with

residents confirmed that homes overlooking the parks gave a sense of safety along with a sense of ownership, improving the reputation of the area.



Fig. 10. Flats overlooking the West Park, Park Central (Source: E Humphreys, 2007)

The East and West Parks have been hugely influential in the design of the site and are almost certainly a major factor in stimulating demand for properties. The public open space at the centre of Park Central (Fig. 11.) is fundamental to the success of the area - its desirability and to attracting people in (DT).

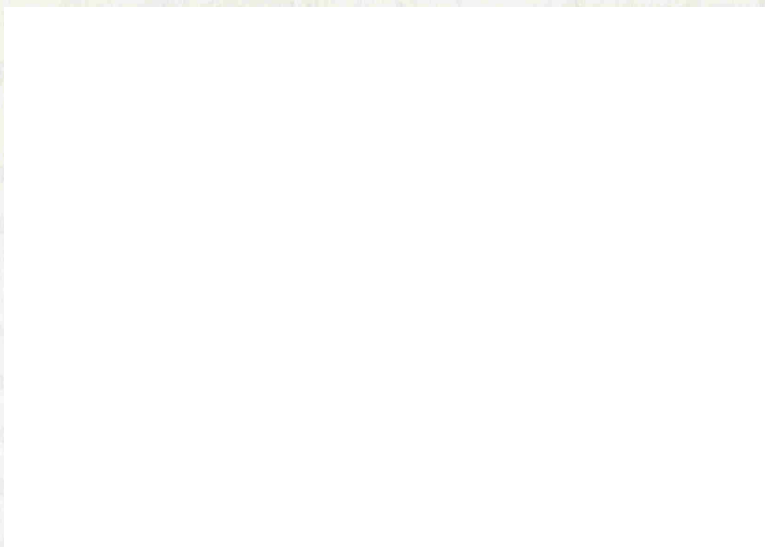


Fig. 11. Park Central (Source: Attwood Green Development Framework, 2001)

My research suggests the relationship between the functional dimension of design and demand for housing and the reputation of the area is strong. Paul Meade confirmed “design is important to how people use space” (PM). The linkages between the functional dimension, the demand for housing and reputation of the community are an extension of those connections previously made between urban morphology and the sustainability indicators. An important consideration in successful urban design is how places are used - how somewhere functions as a *place*, rather than simply a collection of homes and shops. It is widely agreed that Lee Bank was poorly designed and therefore unsustainable (see unpublished dissertation, Humphreys: 2006). The provision of open space should be intrinsic to the design vision; “integration of natural and built environments is a key objective of sustainable development” (Carmona *et al.* 2003:188), an approach adopted in the regeneration of Park Central. The Park Central development boasts 8 acres of landscaped parkland and recreational facilities – a very unusual asset for an inner city development and an important marketing tool for Crest Nicholson.

My research indicates the temporal dimension as less significant in determining the demand for housing. It could be argued that mixed usage in an area helps create a vibrant community both day and night, stimulating urban vitality and creating a more appealing place to live. On the other hand, the temporal dimension is more closely connected with the elimination of crime (see Section 6.2). Similarly, creating peopled places at all times of day, where people want to visit and linger, does improve the reputation of the area but this is more a product of the reduction of crime and fear of crime in the area.

Evidence from Park Central suggests a very strong relationship between the visual dimension of design and the area’s desirability. Visually coherent environments are more appealing and stimulate housing demand. Paul Meade explained that people choose to live in attractive areas that feel safe: “I think design is the most important aspect ... if you design something to be attractive, yes people will come” (PM). Put simply, attractive buildings encourage people to use them (AD). Having created a visually appealing environment in Park Central, demand for private and social housing has increased. Many of the social housing tenants believe the area has a much improved reputation and sense

of place and consequently take more pride in their homes, thus improving the visual appearance of the area further. An example of this was cited by Angela Dyer:

... up the road here there's a guy who has got window boxes and plants outside ...

and he lived in one of those tower blocks up there and was never able to have plants or anything and you can just see the difference it has made. He has now got his own little house and he is so proud of it. (Fig. 12.)



Fig. 12. Plants outside a socially rented property, Park Central (Source: E Humphreys, 2007).

The perceptual dimension of design appears to be most strongly related to the demand for housing, and the reputation and image of the area - here being inextricably linked to the other dimensions of design. Clearly, how a place is perceived is pivotal to the reputation it holds, which in turn impacts on housing demand. Lee Bank was perceived as an area synonymous with vandalism and crime where people had a lack of respect for their properties. Paul Meade explained how important it was to rebrand the area of Lee Bank as 'Park Central' to disassociate from its previous appalling reputation. Dave Thompson agreed that the reputation of the area has changed significantly, largely influenced by designing out the capability for crime in the new estate (see Section 6.2). In a survey of residents' perceptions conducted by Optima in 2006, 82% of residents considered that the

community had a good reputation. The significant change in the reputation of the area is reflected in the demand for social housing. In June 2005 Optima opened its waiting list for properties on Park Central and within 3 weeks, having received 500 applications, closed the list due to high demand. Optima's Chief Executive, Simon Kimberley, commented in an interview "when we started, they were queuing to get out; now they are queuing to get in!" (ODPM, 2006:6).

Evidence suggests there is a strong link between the demand for housing, the reputation of an area, and the social dimension of urban design. Environmental determinism advocates that the physical environment can determine human behaviour and this was arguably a factor in the decline of the estate. Lee Bank was in a state of physical disrepair by the 1990s, with an appalling reputation, low demand for housing and a fractured community. Neighbourhood disputes and high levels of crime on the estate contributed heavily to this reputation and made it an unsustainable community. The creation of a new townscape, on a more human scale, is designed to make the area feel safer, encourage social interaction, and encourage community cohesion (to be covered in more detail in Sections 6.2 and 6.5 respectively).

6.2 Crime and Anti-Social Behaviour

Tenants regularly cite criminality and anti-social activities in surveys as their most important concern about continuing to live in a community ... The fear of crime is far more prevalent than the experience of crime. For sustainability, it is therefore important to consider both actual levels and perceived levels of crime (Housing Corporation and Institute for Urban Affairs, 2003:7).

Lee Bank was an area synonymous with crime in the 1990s, where the park was referred to as 'a mugger's paradise' by residents. Interviewees from Crest Nicholson and Optima, along with residents from the estate agreed that poor design played a significant factor in levels of crime and the decline of the estate (Fig. 13.). Examples cited of poor design were the isolation of the park with parents unable to see their children, graffiti, poorly lit areas, deck access properties with flat roofs, and pedestrian subways.



Fig. 13. Lee Bank, pre-redevelopment (Source: Optima)

Data and evidence from interviews show that actual crime and the fear of crime in the area have reduced significantly. Although figures are not available for Park Central, crime figures for the Attwood Green area (of which Park Central constitutes a large part)

are indicative of the change that has occurred. Data sets collected by Optima show the occurrence of crime and the fear of crime from 2001 to 2006 (Fig. 14.).

Description	Definition	2001/02	2002/03	2003/04	2004/05	2005/06
10. Number of Crimes	The total number of crimes committed in Attwood Green	459	372 (19% drop in total crime)	148 (60% drop in total crime)	No data	127 (9% drop in total crime since 03/04)
11. Neighbour disputes and harassment	The total number of reports of nuisance and harassment per 100 properties	160 reports 8.5 per 100	55 reports 3.2 per 100	90 reports 5.2 per 100	51 reports 3 per 100	79 reports 4.5 per 100
12. Fear of crime	The percentage of households not feeling secure in their home or who would not leave their home after dark	33% perceived crime as a problem	33% perceived crime as a problem	33% perceived crime as a problem	33% perceived crime as a problem	14.6% of residents are dissatisfied with safety and security

Fig. 14. Crime figures (Source: Optima, 2006)

(It should be noted that for periods during this time, properties were vacant whilst demolition and building work was carried out and this may account for some of the drops in reported crime. Falling crime levels may also be partly explained by a dilution effect as increasing numbers of new residents move into the area).

Evidence from Park Central suggests that urban morphology has a very strong impact on the occurrence of crime, and more importantly, on the perception of crime. Dave Thompson stated design was “hugely influential” in the occurrence of crime. It is widely acknowledged that poor form and layout with cul-de-sacs, passageways that are not overlooked, alleyways, and a lack of permeability allow for dark corners and unseen

areas where troublemakers can gather. This can be remedied by “... orientating active ‘fronts’ to streets and public spaces, and inactive ‘backs’ to the private realm” (Lewis, 2005:54). Park Central combines these features, with natural surveillance from properties overlooking gardens (Fig. 15.) and the parks, providing a much greater sense of safety in the area. “Urban design has a lot to take account of when designing out crime on any estate” (DT).



Fig. 15. Flats providing natural surveillance of back gardens (Source: E Humphreys, 2007)

This awareness of design, and the fact that the form and layout follow the approach known as ‘Secured by Design’, reduces levels of crime and anti-social behaviour.

Arguably the morphological and functional dimensions of design are closely linked. Visual permeability, connectedness, and a well designed public realm all encourage people to use spaces, pathways, roads, and to sit and linger. In Park Central, encouraging people to walk, slowing traffic, and creating desirable routes into the city, result in more people on the streets. Active frontages mean there are ‘eyes on the street’ and people feel safer. The parks are the focus of the new development and residents feel much safer than

in the previous 'green desert' of Lee Bank. The high density and the sense of being continually overlooked may appear to some as compromising privacy, but it is also a key determinant in radically reducing fear of crime as well as incidences of crime.

The temporal dimension appears to be strongly related to the fear of crime and the occurrence of crime. Mixed usage gives an area vitality and cultural animation, encouraging people to linger during the day and also into the evening: peopled places are safer places. A problem identified by Carmona *et al.* (2003) is the lack of activity in the public realm during the evening and at night. However, providing well-lit routes through the site leads to greater usage, in turn making the area feel safer, so even more people use them. As Paul Meade commented, "increased activity is better for security" (PM). Park Central has also used a lighting strategy as part of its public art programme, making the area attractive and safer at night.

There is very little evidence to suggest the visual dimension of urban design has an impact on fear and occurrence of crime and anti-social behaviour. Visually appealing buildings may have some impact on reducing the fear of crime as opposed to graffitied buildings, for example. However, this is arguably a tenuous link and is less about design and more about the maintenance arrangements.

There appears to be a strong causal link between the perceptual dimension and crime and anti-social behaviour. Park Central's new identity has resulted in a stronger sense of ownership and pride from its residents. Residents interviewed told me "they [the residents] have got what they want and they respect it". Including young people in the designing of the East Park, for example, has encouraged them to respect the area more than they might have done in the past. Long-term residents believe that graffiti and vandalism have reduced significantly and that the design and consequent sense of ownership has contributed to this. On the other hand, the influence of the local police, community wardens and the involvement of Optima's regeneration team should not be understated.

The case of Park Central suggests the social dimension of design has a very strong impact on levels of crime and anti-social behaviour. Environmental determinism and so-called 'broken window theory' suggest that poorly designed and maintained environments encourage poor behaviour. Logically, therefore, providing a well-designed, functional, visually appealing and well-built environment should encourage better behaviour and reduce crime levels, making the area more socially sustainable. Paul Meade agreed saying:

Society can change by design ... There is a view that you can change the property but you can't change the people. What you can do though, is you can change behaviour.

6.3 The Accessibility of Employment, Facilities and Services

The modernist mantra of the ‘segregation of use’ led to mono-functional communities. Modernist residential estates are often purely residential, only occasionally is there the provision of public services. On Lee Bank, the design of the shops conformed to today’s ideas of mixed use, with residential use above retail. However, on many modernist estates including Lee Bank, where the tenure was effectively 100%, there was no local economy to sustain such services. Chris Sutton, a local historian in Birmingham, described the retail area on Rickman Drive, Lee Bank, thus: “The ... shopping development, which I can’t speak lowly enough of, it was just truly, truly abysmal” (Fig. 16.).



Fig. 16. Local shops on Rickman Drive, 1990s (Source: Optima)

Poor schools and a lack of healthcare facilities are also common problems found on modernist estates, as is the domination of the car and a lack of good public transport links. The Sustainable Development Commission highlight the “serious disconnection between housing provision, and the provision of public services such as schools, bus services, healthcare facilities etc” (2007:11) as being detrimental to sustainable communities. Rather the commission argues:

Sustainable communities require good quality local public services, including good public and private transport links, education and training opportunities, healthcare, sports and community facilities. Communities need easy access to a varied range of these services, and these need to be provided holistically, and in the case of a new development, at the same time as the housing being built (Sustainable Development Commission, 2007:60).

If theory is translated into practice, urban morphology arguably has a strong impact on accessibility to employment, facilities and services. From the initial masterplanning stages Park Central was planned as a cohesive mixed-use development. Lesley Whitling, Director of Housing Services for Optima, commented that piecemeal redevelopment of this site would have been a mistake. One needs to think beyond housing to lifestyles. What is needed is an overall conception of how and where people live, work and play. The masterplan incorporates a supermarket to complement the existing urban fabric. This would create between 500-700 accessible jobs for local people according to estimations by Paul Meade. However, there is currently a planning battle relating to the incorporation of a supermarket on Park Central. If this battle is lost and the supermarket is located elsewhere, the relationship of urban morphology to this indicator of sustainability is undermined. The siting of buildings is important, although Angela Dyer admitted that sometimes the location of services and facilities is determined by pragmatism rather than theory.

In theory the functional dimension is strongly related to accessibility to employment, services and facilities. Facilities and services need to be easily accessed and well used by residents. "Shops and other commercial activities need a market of a given size to be viable" (Sustainable Development Commission, 2007:61) and therefore the design of Park Central is providing for sufficient densities to ensure sustainability. Clearly, Park Central has an advantageous location, in close proximity to the city centre, and this is important because how a place functions is also influenced by its connectedness with the surrounding area, "the key message is that well-connected places are more likely to encourage pedestrian movement and to support a vital and viable range of uses"

(Carmona *et al.* 2003:172). Ironically, however, the location and connectedness of Park Central may be something of a disadvantage thus weakening the relationship between the functional dimension and accessibility to employment, services and facilities in this particular case. The current lack of retail facilities is linked to Park Central's proximity to the city centre and there are concerns that retail outlets on the estate may not be sustainable. Large firms are not interested in investing in unproven areas and rent increases, together with competition from a supermarket on the nearby Fiveways estate, have deterred the original shop owner from Lee Bank from returning. Therefore, a new shop unit remains vacant (Fig. 17.).

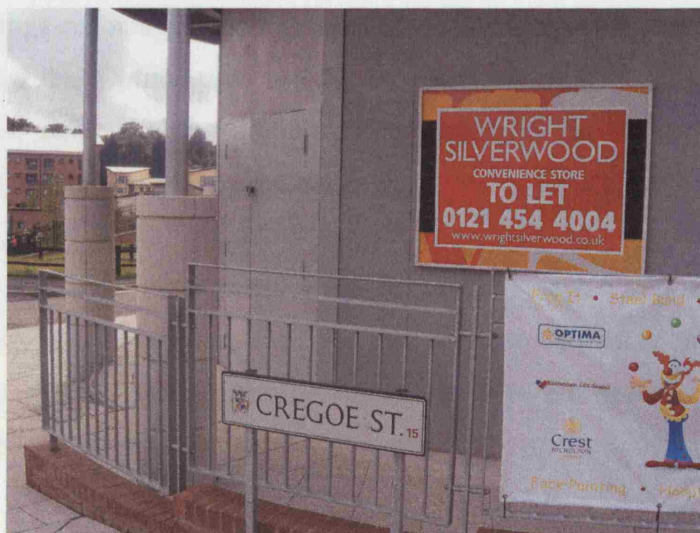


Fig. 17. Vacant convenience store, Cregoe St, 2007 (Source: E. Humphreys)

Residents interviewed commented that Crest Nicholson are not concerned about retail because they make more money from the sale of flats. Residents said, in retrospect, they should have changed the original deal with Crest to include finding an occupant for the shop. Angela Dyer also speculated that there may have been a lack of prominence in discussions about shopping facilities in the early days. Similarly, suggestions of a café and toilet facilities in the centre of the parks for visitors have also been sidetracked. Residents believe that the provision and access to key services are important in integrating the community because it allows people to meet informally. They see the provision of space for a supermarket rather than smaller shopping units as losing the

personal touch and community spirit. However, there is a new church being built on the site and this is predicted to bring back community cohesion.

There appears to be a weak relationship between the temporal dimension of urban design and accessibility to employment, facilities and services. However, the existence of facilities and services helps add vitality and cultural animation to an area throughout the day.

Evidence from Park Central suggests the visual dimension of urban design has some relationship to the accessibility of employment, facilities and services. On a simple level, attractive buildings encourage people to use them. However, during an interview Angela Dyer commented that Optima used to have an old portacabin for their local office but now have a new modern glass building and consequently the formality may result in some people feeling intimidated by the building.

The perceptual and social dimensions of design appear to have a very weak relationship with accessibility to employment, facilities and services. Arguably more important to these indicators of sustainability are the support services arranged by Optima through their social regeneration programmes.

6.4 The quality of the community's built and green environment / The quality design and layout of housing

The existence of linkages between this indicator of sustainability and the dimensions of urban design are synonymous in a number of respects. Urban design considerations directly impact on the design and layout of housing. "The relationship between the physical aspects of a community's housing, its design, layout and build quality and the sustainability of the demand for that property is superficially simple" (Housing Corporation and European Institute for Urban Affairs, 2003:8). However, although the quality of the built and green environment is related to design, it is also largely dependent on the maintenance of the properties. Optima have reported improvements in both of these indicators since the start of their regeneration. Residents' dissatisfaction with environmental issues such as noise, quality of open space, rubbish etc. has reduced from 21% in 2001/2 to 11% in 2005/6 (Optima, 2006:9). Housing quality has also improved shown by an increase in SAP ratings for the stock. Also, in 2002/3, 9.4% of properties were below the Decent Homes standard and this figure dropped to zero in 2004 (Optima, 2006:10).

Urban morphology and the quality of the design and layout of housing are one and the same. A good form, layout and plot pattern that is permeable and accessible makes for a more sustainable physical environment.

How a place functions is interdependent with the urban morphology. The functional dimension of a place should be considered when regenerating the physical environment to ensure a successful layout. For example, movement and connectivity maps were used to inform the new design for Park Central (Fig. 18.). However, as a result, the form and layout of a new development then influences how spaces are used.



Fig. 18. Movement patterns (Source: Optima)

Evidence suggests the functional dimension has a strong impact on the quality of the built and green environment. By advocating the social use of space and connectedness through the creation of a permeable environment and an attractive public realm, there are more 'eyes on the street'. As previously mentioned, this appears to be influential in the reduction of graffiti, for example, and thus the quality of the environment remains uncompromised.

The temporal dimension arguably has no direct link with the design and layout of housing. However, there is possibly a similar link with the quality of the environment to that of the functional dimension. A mix of uses at different times of the day encourages more people onto the streets, discouraging people from criminal damage.

The visual dimension appears to be strongly related to the quality, design and layout of housing. When one sees a place, one sees it as a whole and not in isolated parts (Carmona *et al.*, 2003:131). Therefore, somewhere that is visually coherent as a whole, in theory, is more appealing and in higher demand thus making it more sustainable. Consequently, if the design and layout of housing is visually appealing, the same theory should apply. The visual dimension is also linked to the quality of the built and green environment if one is to consider the idea of environmental determinism and broken window theory. This would appear to be especially important in the provision of social housing. For this reason, Park Central is a tenure-blind development where the social housing and private housing cannot be distinguished by the design of houses and flats (see Section 6.5). A visually attractive, landscaped environment, with public art and street furniture, creates a sense of place and has the ability to instil a sense of pride in a place that discourages vandalism. An example to illustrate this point is the comparison of Rickman Drive in the 1990s to the same street today (Figs. 19&20):



Fig. 19. Rickman Drive, 1990s (Source: Optima) Fig. 20. Rickman Drive, 2007 (Source: E. Humphreys)

However, the retention of a visually attractive environment is largely dependent on the maintenance of the area.

The perceptual dimension has some relationship to the quality of the environment but only as a result of the visual dimension. The more visually appealing an environment, the better the perception of the area, and consequently, the better it is treated. There is no

causal link between how people perceive places and the form and layout they take. Rather, the direction of causation is from form and layout to perception.

Research indicates the social dimension is strongly related to the form and layout of Park Central. The importance of how people behave in certain environments, the creation of neighbourhoods, a well-designed public realm, a safe environment, and making the street a strong social unit have been considered when designing this environment. The design of the form and layout of Park Central has been shaped by the architects, developers, Optima and the residents. Paul Meade described how the community has been engaged from the beginning and resident board members continue to attend masterplanning meetings every two weeks to discuss the final phases of the development. All can see the overall masterplan and the progress that is being made through the model in the Crest Nicholson marketing suite (Figs. 21&22):



Fig. 21. West Park (Source: E. Humphreys, 2007) Fig. 22. Wheeley's Lane (Source: E. Humphreys, 2007)

When asked to judge the significance of urban design to the regeneration of Park Central, Paul Meade responded, "Pivotal. Absolutely pivotal".

6.5 The extent of community cohesion / The mix of the community / Social exclusion and poverty

These three indicators have been amalgamated because they are inextricably linked in their relation to urban design. All three are quite difficult to quantify but all are seen as important contributors to the sustainability of an area. Community cohesion includes “concepts such as the friendliness of residents or a sense of community ...” (Housing Corporation and European Institute for Urban Affairs, 2007:8). The mix of the community includes the idea that “sustainability can be enhanced for example, if developments avoid concentrations of low-income households that are unable to provide sufficient business to support local shops and leisure facilities” (*Ibid.* 2007:9). Social exclusion and poverty therefore, is the opposite facet of the same argument; relating to residents’ dissatisfaction with their community and an inability by residents to maintain their properties or to support local facilities.

The improvements in these sustainability indicators can be seen in Optima’s Report to the Board (2006). For example, one measure of the social exclusion and poverty indicator is rent arrears (Fig. 23.):

Description	Definition	2001/02	2002/03	2003/04	2004/05	2005/06
13. Rent Arrears	The percentage of current tenancy arrears for households outstanding	11.24%	8.85%	8.16%	7.15%	4.7% at week 50 (Housing Benefit cycle payment week)

Fig. 23. Rent arrears (Source: Optima, 2006:6)

Community cohesion is an interesting indicator of sustainability and the current situation on Park Central would appear to be defying the theory that creating sustainable communities results in an increase in community cohesion (Fig. 24.):

Description	Definition	2001/02	2002/03	2004/05	2005/06	
25. Residents involvement in decision making	The number of active residents organisations in the area	Five active associations plus Leaseholder Group	Six active associations plus Leaseholder Group. Seventh still to be formally constituted. Neighbourhood Forum with representation from all Five Estate	Seven active associations and Neighbourhood Forum	Five active associations and Neighbourhood Forum. Two women's groups and residents social events group. Plans in place for additional and more representative ways of involving residents	Interest in associations is waning. Forum has suspended its meetings. Residents involved in service reviews and improvements, Board and committees. Talkback initiative currently being set up intended to involve wider range of residents.

Fig. 24. Community cohesion (Source: Optima, 2007:11)

This suggests that social cohesion is, in fact, reducing despite having an environment designed to encourage interaction. Dave Thompson suggested this may be because the community of Lee Bank was brought together with a common goal of regenerating their estate. Ironically, now they have achieved their original goal, and the emotive issue has been removed, there is less cohesion. However, Dave Thompson also commented that true community cohesion rarely exists on any estate, whatever the tenure. In reality, people lead very individual lives – possibly reflecting a change in society as a whole. Therefore, perhaps community cohesion should be less about the expectation that everyone should be friends who are actively involved in the community and more about people simply getting on with each other on a day-to-day basis.

Urban morphology can encourage community cohesion through providing an environment conducive to informal meetings of residents, bringing people together and reducing feelings of isolation and loneliness. The situation of the parks in the centre of

the new development is a vital factor in the design of Park Central, providing a space where people can meet: “The park makes a big difference ... that’s a place that will bring people out and bring people together” (AD). The reversion to traditional block patterns rather than free standing buildings is more human in scale. Similarly, the return to a streetscape (Figs. 25&26.), replacing the high rise tower blocks, also encourages more human interaction and removes the isolation and anonymity associated with living in a large vertical block.



Figs. 25 & 26. Street scenes, Park Central, 2007 (Source: E. Humphreys)

The functional dimension also has a strong relationship with community cohesion because it affects the way people use space. Designing an environment that encourages people to walk through an area encourages the potential for social interaction where a car dominated environment does not. Visual permeability is important in determining movement densities and encounter rates. This has been considered in Park Central and desire lines and movement patterns were considered in the new development. There are clear lines of sight dissecting the development to encourage people onto the streets (Figs. 27&28).



Fig. 27. West Park to St. Thomas's Church, 2007
(Source: E. Humphreys)



Fig. 28. West Park to Elvetham Road, 2007
(Source: E. Humphreys)

Higher densities also mean there will be more people and more 'eyes on the street', making the area feel safer and, in theory, encouraging social interaction.

The temporal dimension arguably has a weak impact on community cohesion and social exclusion. Having day and night activities in the area may even have the potential to have an adverse effect on community cohesion as noise after dark may cause disruption.

The visual dimension has a very strong relationship to community cohesion. Park Central is a tenure blind development – meaning the styles and features of design are continuous and do not differentiate between private and socially rented homes. Dave Thompson stated that segregating tenures was detrimental and that continuity in design was important:

The visuals are hugely important because it's saying to the people who occupy those properties 'you are not getting treated any differently to the people who are buying their own homes' ... we are trying to give them a sense of ownership and that goes part of the way (DT).

Paul Meade agreed, describing the fact that property tenure is indistinguishable as "very important" (PM) to the community. Visual design is important in creating a sense of

place, a sense of belonging and of pride and ownership in the area, especially from returning tenants who lived in the area before the regeneration.

Evidence suggests the perceptual dimension has a strong impact on the community, giving an area meaning and identity, defining the area in which people live so they can relate to it. Park Central is a definable area, a place that can be located easily within a boundary and has architectural continuity. However, some Optima residents still refer to their address as Lee Bank and refuse to accept 'Park Central' as they see it as nothing more than a marketing name.

The social dimension has a very strong impact on the community. The design of Park Central facilitates this public life, from play areas for the young ...



Fig. 29. East Park, 2007

(Source: E. Humphreys)



Fig. 30. East Park hard court, 2007

(Source: E. Humphreys)

... to quieter landscaped areas for adults:



Fig. 31. West Park sky mirror, 2007
(Source: E. Humphreys)



Fig. 32. West Park, 2007
(Source: E. Humphreys)

Mixed usage ensures there are services for the community such as education, healthcare, and community facilities, although it should be noted that access to these existed before the regeneration. Key services allow for people to meet informally and encourage encounter rates. Mixing tenures allows for integration rather than segregation, as Dave Thompson commented: “Gentrification hasn’t excluded them [the social housing tenants], it has included them in giving them exactly the same sort of properties [as homeowners]”. However, many of the homes for sale by Crest Nicholson have been bought by investors and have become buy-to-let properties. Private renters have less of a stake in the area and therefore lack an incentive to get involved in the local community. Long term local residents suggested that mixing socially rented homes and homeowners has the potential to create a cohesive and economically sustainable community. However, they saw socially rented mixed with buy-to-let properties as a barrier to having community cohesion. During an interview, long-term resident Steve Austin surmised, “If it [mixing tenures] could work well, if we could get it working right, it would be excellent. But I foresee problems in the future”. Since Park Central is a scheme still in its infancy, the consequences of the tenure mix can only be judged in the future.

7. A RETURN TO THE MATRIX

My research has enabled me to reach judgements relating to the impact of urban design on the specified indicators of sustainable communities. The completed matrix (Fig. 33.) is found on the following page.

Key to matrix:

The level of relationship between the dimensions of urban design and the sustainability indicators	Colour codes
Weak correlation	
Some correlation	
Good correlation	
Very strong correlation	

Indicators of Sustainable Communities Adapted from <i>A Toolkit of Indicators of Sustainable Communities</i> (Housing Corporation and European Institute for Urban Affairs, 2003)						
The Dimensions of Urban Design (Carmona <i>et al.</i> , 2003)	The Morphological Dimension	The Functional Dimension	The Temporal Dimension	The Visual Dimension	The Perceptual Dimension	The Social Dimension
	Demand for housing / Reputation (or image) of the community	Crime and anti-social behaviour	The accessibility of employment, facilities and services	The quality of the community's built and green environment / The quality design and layout of housing	The extent of community cohesion / The mix of the community / Social exclusion and poverty	

(Fig. 33.)

8. CONCLUSION

Evidence from Park Central suggests that urban design is essential to the regeneration process when creating socially and economically sustainable communities. The matrix illustrates the very close relationship between the morphological and functional dimensions of design and all the sustainability indicators. At the same time, the matrix demonstrates the strong links between all dimensions of design with the demand for housing and reputation of the community, and crime and anti-social behaviour. This research has shown that urban regeneration and urban design are mutually dependent and, therefore, projects should follow the example of Park Central and should be holistic from the outset.

The relationship between the dimensions of urban design and sustainability is complex. Not only are the dimensions of urban design inextricably linked, but also the indicators of sustainability are interdependent. This research, and illustrative matrix, demonstrate how these two areas intersect at various levels and become difficult to extract from one another. The exposition of this research has attempted to divide these subjects for the purpose of structuring an argument, leading to inevitable repetition. However, in doing so, it has also demonstrated how closely related the dimensions of urban design are to one another and to the economic and social sustainability of a regeneration scheme. The connections between design and sustainability are more wide-ranging and complex than a 10,000 word Report can fully explore. This exploratory study has arguably raised as many questions on the topic as have been answered and there is scope for more extensive and detailed research to be done.

The use of a matrix to structure this exploratory research has illustrated clearly the interrelationship between the chosen sustainability indicators and the dimensions of urban design. However, due to length limitations, the evidence used to reach such judgements has been based on mainly qualitative data and has, therefore, been largely subjective. With more time, conclusions could be tested through an exploration of comparative case

studies, through statistical analyses of quantitative data, and through the compilation of matrices with alternative variables on the x and y axes.

In conclusion, my comments and recommendations are:

1. Urban design is essential to the social and economic regeneration process, especially in transforming problem residential estates. Therefore, urban designers should be involved in the regeneration partnership from the outset of any project.
2. The morphological and functional dimensions of design impact on all sustainability indicators and, therefore, should be central to and comprehensive regeneration project.
3. Urban design has a very significant impact on sustainability, especially on demand for housing and the reputation of the community, and crime and anti-social behaviour. Therefore, urban designers should consult the community extensively throughout the regeneration process and constantly evaluate the social impact of design.
4. Further research is needed to test the conclusions reached against the hypothesis that urban design plays an essential role in the creation of economically and socially sustainable communities.

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10. APPENDIX

Details of Meetings and Interviews

Those written in **red** had recorded interviews, which are available on CD to accompany this report. Quotations from interviewees have been referenced using their initials throughout this document.

Date	Time	Person/Position
25/07/07	14.30	Walkabout with Bernie McCullagh (BM) – Resident Liason Officer, Optima Community Association
26/07/07	9.00	Angela Dyer (AD) – Head of Regeneration, Optima Community Association
26/07/07	13.00	Lesley Whitling (LW) – Director of Housing Services, Optima Community Association
26/07/07	16.00	Steve Austin, Lee Moore and Chris Butler – Long term residents of the area
27/07/07	10.30	Paul Meade (PM) – Project Manager, Crest Nicholson
27/07/07	12.00	Dave Thompson (DT) – Development Manager, Optima Community Association